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SACRED IBIS IN SOUTH-WESTERN AUSTRALIA

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INTRODUCTION

The Sacred Ibis (*Threskiornis aethiopicus*) in its sub-species *molucca* (also known as White Ibis) occurs in the Moluccas, the lowlands of New Guinea and large areas of Australia. Such distribution might be termed trans-equatorial. Vagrants reach Tasmania and New Zealand but on the mainland of Australia, the range of the Sacred Ibis is discontinuous but generally spans the continent. Published distribution maps (Slater, 1970; MacDonald, 1973; Busby and Davies, 1977; Pizzey, 1980) and banding recoveries documented by Carrick (1962), suggest a continuous distribution across tropical Australia, and southwards along the east coast. Continuity seems to exist between northern and eastern Australia, and, at least in the wet season, between the Kimberley Division and the rest of northern Australia. Banding evidence indicates that movements of Sacred Ibis, from breeding-places in central Victoria, occur in two directions along the east coast; a few birds fly to northern Queensland, while other groups of Sacred Ibis disperse along the south-east coast. These patterns of distribution have been mapped, using some of the information in accordance with the published maps and also personal scrutiny of the available records of Sacred Ibis (Fig. 1).

The importance of geographical controls on Australian bird distributions has been discussed by Gentilli (1949). Arid and semi-arid regions appear to offer an effective barrier to Sacred Ibis. Regional differences in climate and the availability of wetland habitats, may account for the fact that its status varies widely: it is abundant in the northern and eastern parts of Australia, while small colonies are found in south-western Australia; elsewhere the bird is rare.

This paper will consider aspects of the distribution and ecology of the Sacred Ibis in south-western Australia. Much of it is based on personal observations, except where explicitly acknowledged, and is intended to supplement more the detailed studies of a decade or two ago (e.g. those of Carrick, 1959; 1962), and recently by Cowling and Lowe (1981).

INVASION OF SACRED IBIS INTO SOUTH-WESTERN AUSTRALIA

Sacred Ibis have only recently colonised the south-west of Western Australia. Although W.B. Alexander, in his ornithological notes in Australia, has several observations of Straw-necked Ibis (*T. spinicollis*) in south-western Australia, he includes no mention of Sacred Ibis (unpublished documents between 1912 and 1925, Canberra). Also they were not listed by D.L. Serventy in his 1948 publication on the birds of the Swan River District. In 1952, when a very low rainfall was recorded in the north of the State, small numbers of Sacred Ibis moved south from the Kimberley Division. Individuals were noticed among the flocks of Straw-necked Ibis in various coastal localities between Perth and Busselton. Observations in regions more distant from the sea were rare; however in December 1957, Sacred Ibis were observed near Narrogin, at Lake Toolibin (Serventy and Whittell, 1976).

In autumn 1968, there was another small irruption of Sacred Ibis, but this time the species became permanently established in the south-west. Jenkins (1968 and 1971) described small flocks of birds in Wanneroo and Cockburn (Lake Mariginiup, Lake Jandabup, North Lake and Bibra Lake), usually in the

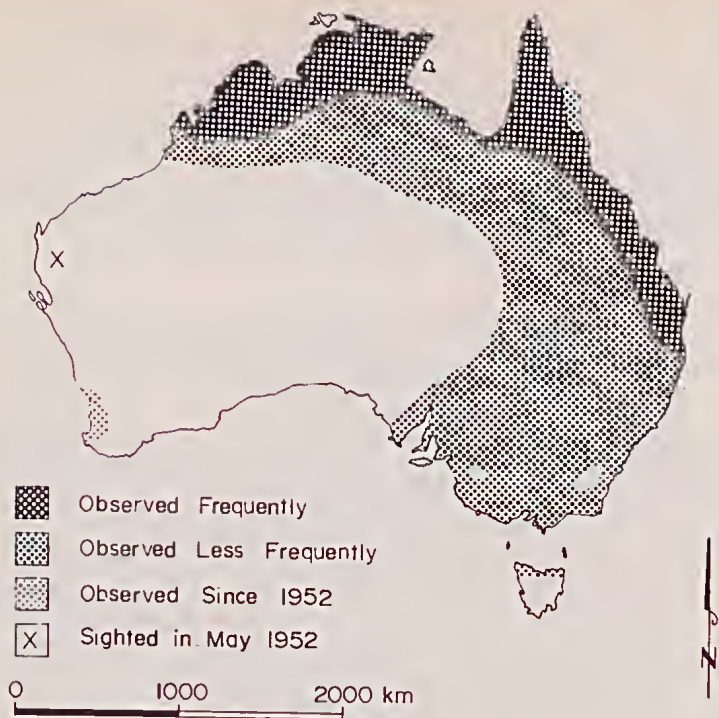


Figure 1. The distribution of Sacred Ibis in Australia.

company of larger numbers of Straw-necked Ibis. Sightings of even larger groups of Sacred Ibis have been made at Guildford by Mr. R.P. McMillan (pers. comm.), they included: 24 on 26 June 1973, and again over 20 on 13 July 1973, and 15 on 8 August 1973, on a swamp near Guildford Grammar School. Information on flocks of Sacred Ibis closer to Perth, at Lake Herdsman, was supplied by Mr. O. Mueller; some of his sightings included: 6 on 20 September 1975, 15 on 12 August 1976 and 5 on 19 June 1977. In January 1978, a large group of birds was noted by officers from the Western Australian Museum; 55 Sacred Ibis were seen over reeds on the west side of Lake Jandabup.

At the beginning of 1979, I discovered the largest population of Sacred Ibis yet documented for the south-west. A colony of Sacred and Straw-necked Ibis was roosting on Lake Joondalup, in two adjacent sites. The area on the north-west bank was by far the larger, accommodating a total of 647 birds in early January. In addition to this, eleven different species were observed using this roosting site at the one time, particularly Cormorants, Heron, Spoonbill, Egrets and Darters. Observations and accurate figures of the population were obtained from early morning surveys conducted throughout January and February 1979, using a concealed 'hide'; groups of birds were recorded as they emerged from the roosting site. Once the roost was virtually empty, the remainder were deliberately disturbed to complete the census.

The roosting site extends approximately 350 metres along the shoreline. Deep water is enclosed by *Melaleuca* (paperbark) woodland and native sedges, allowing access only from the south end. An inner fringe of dead paperbarks lines the channel of open water from the east and west; the trees are permanently immersed in the water, protecting the birds from predators. The Ibis showed a preference for these dead trees, whereas White Egrets (*Egretta alba*) were more commonly found in trees with foliage. This area offers its occupants complete seclusion, ample roosting perches and

protection from wind. Ibis represented between 50 and 70 percent of all birds using this roost, with the two species present in almost equal numbers: in late January 1979, the site contained 293 Straw-necked Ibis and 119 Sacred Ibis. This roost was known to still be in use on 10 March 1981, when 53 Sacred Ibis were recorded.

The Sacred Ibis mainly occupy the eastern side and only the lower branches on the west, whereas the bulk of the Straw-necked Ibis settle on the high branches along the western side. Most of the birds use Lake Joondalup primarily as a roosting area, leaving for nearby wetlands to feed. The outward migration of Ibis occurs each morning, beginning at sunrise. Sacred Ibis are generally the first to leave the roost, moving off individually or in small groups. Initially, they will congregate in an area close by, form larger groups, and then leave the lake flying in a straight line or 'V' formation with necks outstretched. The majority travel eastwards but a small number fly south. Straw-necked Ibis move in larger numbers, leaving the lake immediately they are in flight. Three to four groups will follow one another in formation, travelling in a north-easterly direction. The exodus of Ibis will span about an hour. After the first departures, later movements occur more frequently; large mixed flocks move away to the north-east and east. Smaller groups of birds move about the lake, flying either south or north along the western shoreline. Finally, the movements begin to dwindle, until about a dozen Ibis remain in the roosting site. These birds comprise a part of the small population of approximately thirty Ibis that remain on Lake Joondalup to feed throughout the day.

Noting the directions in which the Ibis moved, I made an attempt to locate their feeding grounds: flocks of Ibis were found grazing at Paul's Swamp, Beenypup Swamp, Lakes Jandabup, Mariginiup and Adams. Straw-necked Ibis have been observed feeding in cleared paddocks some hundreds of metres away from the water, such as to the north-west of Lake Joondalup; they will feed both in wet and dry areas. In the open fields they probably feed on insects such as grasshoppers. Sacred Ibis usually feed in shallow water, probing for water insects, snails and small fish; they thus represent the bulk of the Ibis population feeding on Lake Joondalup.

The second roosting site is located north of Mullaloo Drive in the middle of Lake Joondalup. It comprises of a stand of dead paperbarks situated approximately 200 metres from each of the two lake shorelines. The roosting area offers excellent protection from predators, being completely surrounded by water, but is exposed to the wind. In February 1979, this area was found to accommodate only 57 birds, Sacred Ibis being the only species represented with the exception of a few Yellow-billed Spoonbill (*Platalea flavipes*) and Straw-necked Ibis. The water is comparatively shallow at this site, with a gentle gradient on the eastern bank, enabling the Sacred Ibis to roost and feed.

SEASONAL RECORD OF SACRED IBIS IN THE PERTH METROPOLITAN REGION

Later observations confirm that the Sacred Ibis is now regularly recorded in the Perth region (see Fig. 2). Arranging the sightings in seasonal sequence, we have:

Month	Year	Lake	Number
Jan 14	79	Joondalup	37 (roosting site)
" 28	"	Joondalup	119 (roosting site)
"	80	Jandabup	230
"	"	Loch McNess	4
"	81	Bibra	1
"	"	Gwelup	2
"	"	Joondalup	19
"	"	Loch McNess	1
"	"	Mariginiup	1
"	"	Neerabup	2
"	"	Thompson	6
Feb	79	Joondalup	156 (roosting site)
"	"	Mariginiup	4
"	80	Goegrup	9
"	"	Loch McNess	6

Month	Year	Lake	Number
Feb	81	Bambun	2
"	"	Bibra	24
"	"	Gwelup	3
"	"	Jandabup	4
"	"	Loch McNess	1
"	"	North	2
Mar	80	Goegrup	12
"	"	Goollelal	2
"	"	Joondalup	24
"	"	Mariginiup	5
"	"	Nowergup	1
"	81	Bambun	5
"	"	Herdsmen	2
"	"	Joondalup	53 (roosting site)
"	"	Loch McNess	1
"	"	Mariginiup	2
"	"	Monger	1
"	"	Nowergup	2
Apr	80	Joondalup	22
"	81	Bambun	2
"	"	Bibra	3
"	"	Goegrup	1
"	"	Goollelal	1
"	"	Herdsmen	1
"	"	Joondalup	8
"	"	Loch McNess	1
"	"	Mariginiup	3
"	"	Monger	1
"	"	Yangebup	20
May	80	Bambun	2
"	"	Goollelal	1
"	"	Gwelup	2
"	"	Yangebup	23
"	81	Bambun	4
"	"	Goollelal	3
"	"	Joondalup	18
"	"	Loch McNess	1
"	"	Mariginiup	2
"	"	Yangebup	4
June	80	Bambun	1
"	"	Herdsmen	30
"	"	Nowergup	1
"	81	Herdsmen	1
"	"	Joondalup	11
July	80	Goegrup	8
"	"	Herdsmen	8
"	"	Joondalup	1
Aug	80	Herdsmen	30
"	"	Nowergup	1
Oct	80	Bambun	1
"	"	Herdsmen	10
Dec	79	Monger	2
"	80	Forrestdale	10
"	"	Nowergup	1

The number of Sacred Ibis recorded at a roosting site (e.g. Lake Joondalup) are much greater than the counts obtained during the day time, when flocks of birds are observed feeding. It is also worth noting that no



Figure 2. Locality Plan

observations have been recorded for either September or November. During this period, some Sacred Ibis may be leaving the Perth region for locations further south along the coast. Records from Benger Swamp, south of Harvey, show that Sacred Ibis appear in the second half of October, in November and December. In his earlier visits to the area, Mr. E. Sedgwick sighted: 1 bird in December 1965, and again 3 in October 1969, 1, 5, 2, 1, 1, in November-December 1970, and 9, 1, 17, 1 in October-December 1971 (Sedgwick, 1973). Later surveys revealed a similar pattern of seasonal occurrence of Sacred Ibis. A steady increase in the numbers of birds recorded on the swamp is consistent with observations made in the Perth area. In 1974, one bird was noted on 2 September, and thereafter scattered individuals and groups were present until 10 January 1975, when at least 35 were recorded. Even larger numbers of Sacred Ibis were observed in 1976: 3 birds were noted on 1 September, followed by a gradual build-up of birds, until 100 birds were estimated to be present on 31 October (Sedgwick, 1977).

The most recent report of Sacred Ibis concerns a hundred year old pine tree in Mill Point Road, South Perth (*West. Aust.*, February 5, 1981, p. 24). It is the nesting place of dozens of Sacred Ibis, and almost certainly is the only nesting site in the Perth region. The colony is thought to have originated from a population of Sacred Ibis roosting at the South Perth Zoo. In late 1971, a colony of Sacred Ibis was established at the zoo, with the introduction of 12 birds from Victoria. Three years later, a flock of approximately 20 wild birds joined the original population, probably attracted by food at the zoo. Now there is a resident population of about a hundred Sacred Ibis. During the summer of 1973-74, Sacred Ibis bred at the zoo, producing a total of 10 young. Since then, the birds have stopped nesting, control measures being implemented by the management. This action was necessary because of a number of problems that occurred following the establishment of the breeding colony: Sacred Ibis robbed the nests of Egrets and Spoonbill, gouging out the stomach contents of nestlings; undesirable hybrids were produced between Sacred and Straw-necked Ibis; the Ibis became very noisy when breeding, especially the males, causing considerable disturbance to other species of birds (Mr. T. Spence - Director of the Zoological Garden at South Perth, *pers. comm.*)

SUMMARY

Certain similarities exist between the Sacred and Straw-necked Ibis, but there are also obvious differences. The observations of Sacred Ibis recorded in this paper indicate that the bird is somewhat unpredictable in its wanderings throughout the Perth region, although some Sacred Ibis may be more sedentary (e.g. the colony at the zoo). Records from Benger Swamp indicate some traces of a seasonal north-south migration in Western Australia, similar only to that documented for eastern Australia. Only the presence of marked geographical barriers in central Western Australia restricts the movements of Sacred Ibis to within the more favourable south-west. Straw-necked Ibis are observed more regularly and in larger numbers; this could be related to their greater ability to obtain food from a wider and drier range of habitats. The Sacred Ibis, which is so much more dependent on aquatic food sources, may be forced to disperse in search of suitable feeding grounds.

The evidence we have suggests: the species has extended its range over the last two decades and is now well established in the south-west; it is increasing in numbers, successfully adapting to an urban environment (e.g. by nesting in a pine tree); hybridization and predation upon other species have occurred. Clearly, the ecological niche of the species is changing but further research is required before the status of the Sacred Ibis in south-western Australia is properly established.

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A SPECIMEN OF THE WHITE WAGTAIL (*MOTACILLA ALBA*) FROM GERALDTON, W.A.

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Western Australian Museum

On 18 March 1981 the watersida workars at Gareldton noticad a stranga bird feeding on the wharf. Thay raportad it to Mr. G.B. Struthars, Quarantlne Officar at the Garaldton offica of the Dapt. of Agricultura. An attempt to collect the bird lata that afternoon failad. Eerly the following morning Mr. R. Chant of the sama offica sought the bird again end shot it on the dack of the fraighter *Marina Grenda*. Mr. Chent questioned the first mate but he hed not praviusly sean the bird.